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ABSTRACT

A sample research observation measure and its preparation into a written observer training package for use in evaluating children within or across classrooms is described. The Planned Activity Check (PLA-Check) measure, a time-sample observation of children's participation is planned activities; was used. A training manual based upon the PLA-Check was devised and then revised on the basis of a series of user tests. The use of the PLA-Check training manual was found to be sufficient as an exportable training program for observers on the use of a standardized measurement system of classroom participation. The study also provides an example of procedures useful in developing a measure for general use. Last, the PLA-Check as a measure provides an evaluation process for across setting comparison of classrooms and techniques. Tables and graphs are included in the study to show the reliability of the observer at different phases of development. (MP)

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Development of a Standardized Measure of Classroom Participation[1]

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The number of programs employing applied behavior analysis techniques is increasing to the extent that an evaluation and comparison of these programs would be desirable. The common use of achievement tests is not particularly suitable for such comparison because most such tests assess an individual student on specific subject content. By contrast, behavioral programs are most often instituted for an entire class rather than as separate programs for each student. The need, then, is for a behavioral measure which provides an overview of classroom techniques.

In addition to behavioral scientists and educators, the Federal Government also seems to be interested in this issue. A case in point is a 1971 report (HEW, 1971) to the Secretary of Health, Education, and Welfare which recommended evaluation of the behavioral techniques employed in both special and regular classrooms. Specifically, the report recommended that standardized procedures for the classroom evaluations be developed from the measures used in behavioral research.

It should be clear, and the previous papers in this session provide a good example, that we have an extensive technology of behavioral measures for use in the classroom. The question now is how to standardize some of these research measures in convenient written form so that they may be reliably employed in general classroom evaluations.

We undertook an exercise to find out if it would be possible to accomplish this easily; that is, we endeavored to take a relatively simple research observation measure and go through the steps to prepare it into a written observer training package suitable for general use in evaluating groups of children in classrooms as a whole and for comparing different classrooms.

The measure we chose has been reported in previous research as the PLanned Activity Check--or PLA-Check (Doke and Risley, 1971; LeLaurin and Risley, 1972; Doke and Risley, 1972; Risley and Cataldo, in press). In these studies, the PLA-Check has been used to investigate the effects of various schedules, routines, activities, types of materials, and methods of presenting materials.

The PLA-Check measure is a time-sample observation of children's participation in planned activities. Let me explain briefly the procedures for using the PLA-Check measure.

On the day preceding the evaluation, the teacher is asked to list the activities she has planned for the next day. She is also asked to specify those student behaviors that define appropriate use of materials and/or participation in planned activities. Throughout the day of the evaluation, time-sample observations are made of the number of students present and the number participating. This procedure provides information on the pattern of participation during the day and answers the question of how well plans were made by the teacher and how well these plans were implemented.

As a first step, we devised a training manual based upon the PLA-Check procedures used in previous research studies. The training manual describing the use of the PLA-Check measure was developed to provide three levels of information:

> General information about how and where the measure may be used, with examples of its use in previous evaluations.
>
> Supervisor's information on the use of the measure, the materials needed, scheduling of observers and observations, the computation and use of data and reliability.
>
> Observer training information of step-by-step procedures on taking observations, use of recording forms, and computation of data.

We then subjected this manual to a series of user tests and revised it based upon the results of its use. As we proceeded, each successive phase of investigation more closely approximated the PLA-Check procedures by the target consumer: education programs of various types at different locations. Inter-observer reliability was used as the dependent variable to indicate the need for improvement of the materials and to measure the project's progress toward a readily usable and reliable measurement procedure. Development and testing of the training manual proceeded in three phases.

Phase I. In this phase, the complete training manual was revised until five pairs of naive observers could be exposed only to the training manual and obtain point-by-point reliability with each other above the 90 percent level on a sample class observation. The results of this phase are presented in Figure 1. Each data point represents a different pair of naive observers' reliability on a sample classroom observation. Sample observations ranged from 15 to 44 minutes, depending upon the length of the activity period observed. As indicated in Figure 1, four revisions were made resulting in a training manual sufficient to instruct naive observers to attain 90 percent reliability in actual classroom observation.

Phase II. Five naive observer pairs received instruction on use of the measure solely from the training manual. Each observer pair was then assigned to collect data on an entire class day. Each pair was assigned to one of five different grade levels: a preschool, a first, second, and third grade, and a high school class.

The results of Phase II are presented in Figure 2, and show that the mean reliability on observations in each class was high: in one class, the third grade, observers obtained 87 percent agreement; and, in the other four classes, inter-observer agreement was above 90 percent.

Phase III. In the final phase, five directors of classroom projects in other locations were subcontracted to obtain a full class day's data on one of their classrooms, using only the training manual with two observers selected by them. The classes observed were: a community-sponsored preschool, a Behavior Analysis Follow-Through kindergarten, a contingency-management third grade, a combined open-classroom fifth grade, and a traditional public school seventh grade.

The Phase III results presented in Figure 3 demonstrate that the mean reliability of the observers selected by directors of other education programs was above 85 percent for each class day observed; and four of the five locations demonstrated above 90 percent observer agreement.

Also during Phase III, one of the experienced observers at the University of Kansas who had participated in the development of the training materials travelled to each location and made independent, simultaneous observations of the classrooms with the local observers. Figure 4 shows that the mean reliability scores for observations made by the developers' observers and one or both of the consumers' observers was above 85 percent for each class observed.

Data obtained during the development and testing of the PLA-Check training materials also showed that high inter-observer agreement was obtained whether class participation was high or low.

Table 1 indicates that inter-observer reliability on observations in preschool through college classes ranged from 88 to 97 percent, even though the student participation in these classes ranged from 42 to 90 percent.

A more detailed look at participation and reliability is presented in Figure 5. In this figure, data from a preschool and a third-grade class were analyzed. The preschool represents an example of a poor class with participation averaging 50% or lower. The third grade represents a class with high participation, usually above 70%. In both classes across successive days, reliability was consistently above 85%. Thus, reliability was consistently high regardless if the class had generally low participation or high participation or on occasion varied substantially from previous levels, as in the case of days 13 and 14 in the third-grade class.

Participation and reliability data for the preschool and third grade are presented for individual PLA-Checks across an entire class day's activities in Figure 6. Again, the data show that, even at the level of individual checks, reliability is high whether the class has high, low, or variable levels of participation.

In conclusion, we'd like to make three points about this demonstration.

First, the results show the PLA-Check training manual to be sufficient as an exportable training program for observers on the use of a standardized measurement system of classroom participation.

Second, the study also provides an example of procedures useful in developing a measure for general use. These procedures include the use of naive observers in a variety of educational settings with continued revision until training materials are adequately described to be sufficient to direct people's behavior.

Last, the PLA-Check as a measure provides an evaluation process for across-setting comparison of classrooms and techniques. The measure also provides convenient procedures for other investigators to conduct further classroom research, curriculum development, teacher training, and design of teacher activities.

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FOOTNOTE

1. This is one of a series of projects conducted by the Living Environments Group at the University of Kansas under the direction of Todd R. Risley. This project was supported in part by a contract from the Office of the Secretary of the Department of Health, Education, and Welfare (HEW-05-70-155).

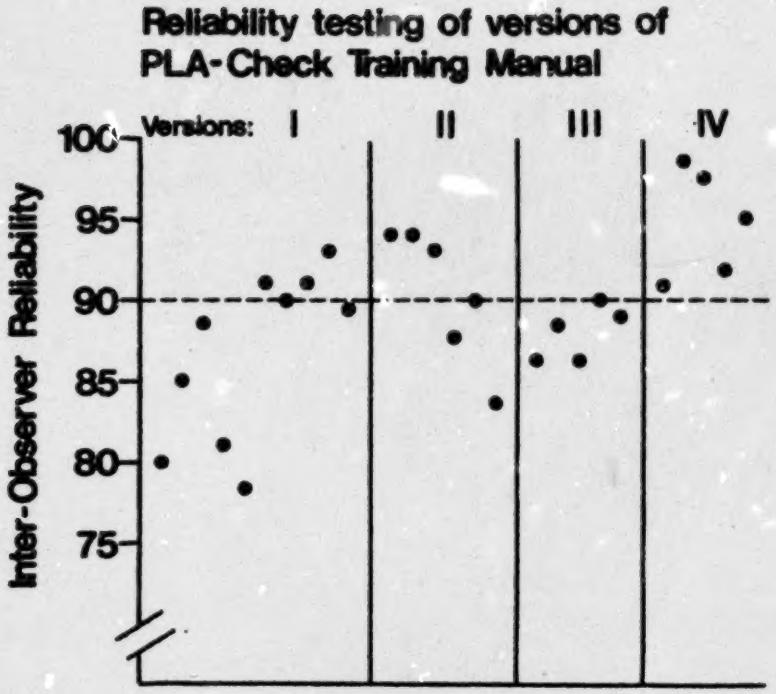

Figure 1. Scatter diagram of reliability scores of Phase I of the study in which 26 different observer-pairs each employed one of four versions of the PLA-Check Training Manual. Each point represents the percentage of agreement between one observer pair making a PLA-Check observation of a class.

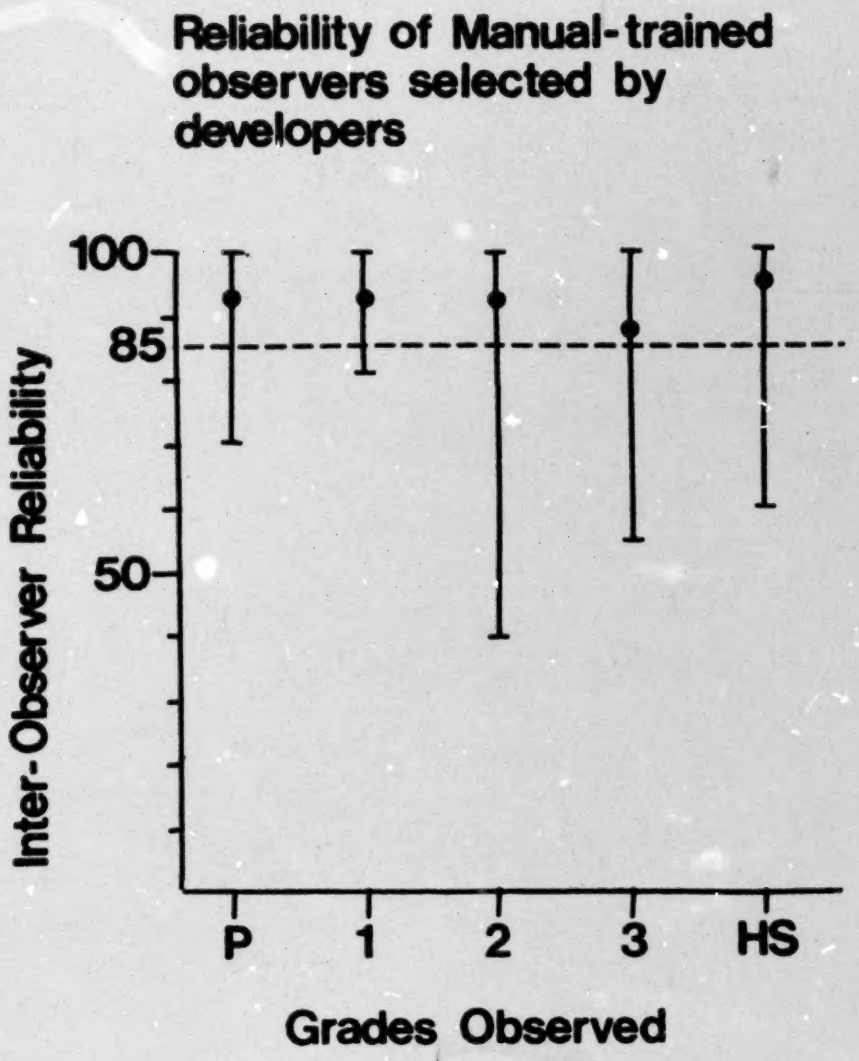

Figure 2. Mean and range of inter-observer reliability scores for Phase II in which observer pairs employing the PLA-Check Training Manual obtained a representative class day's data of five different grade levels. Reliability scores for each setting represent observation by a different pair of observers.

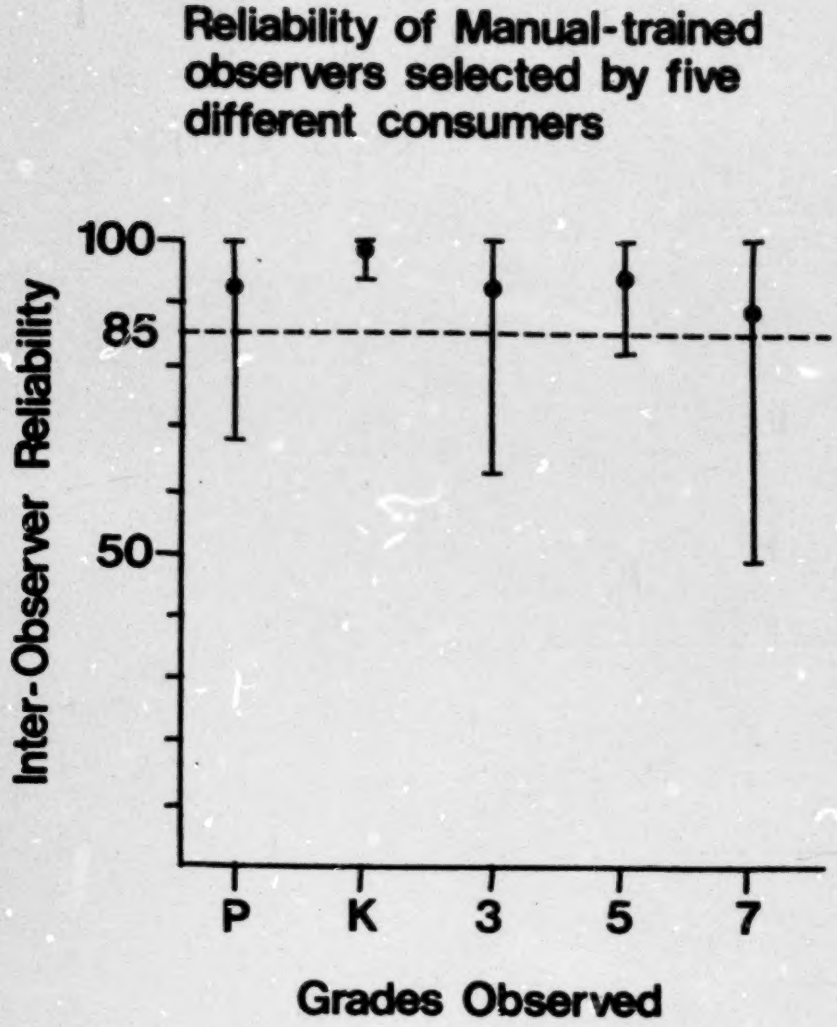

Figure 3. Phase III mean and range reliability scores of observer-pairs chosen by five classroom research program directors subcontracted to obtain a representative day's participation data using the PLA-Check Training Manual.

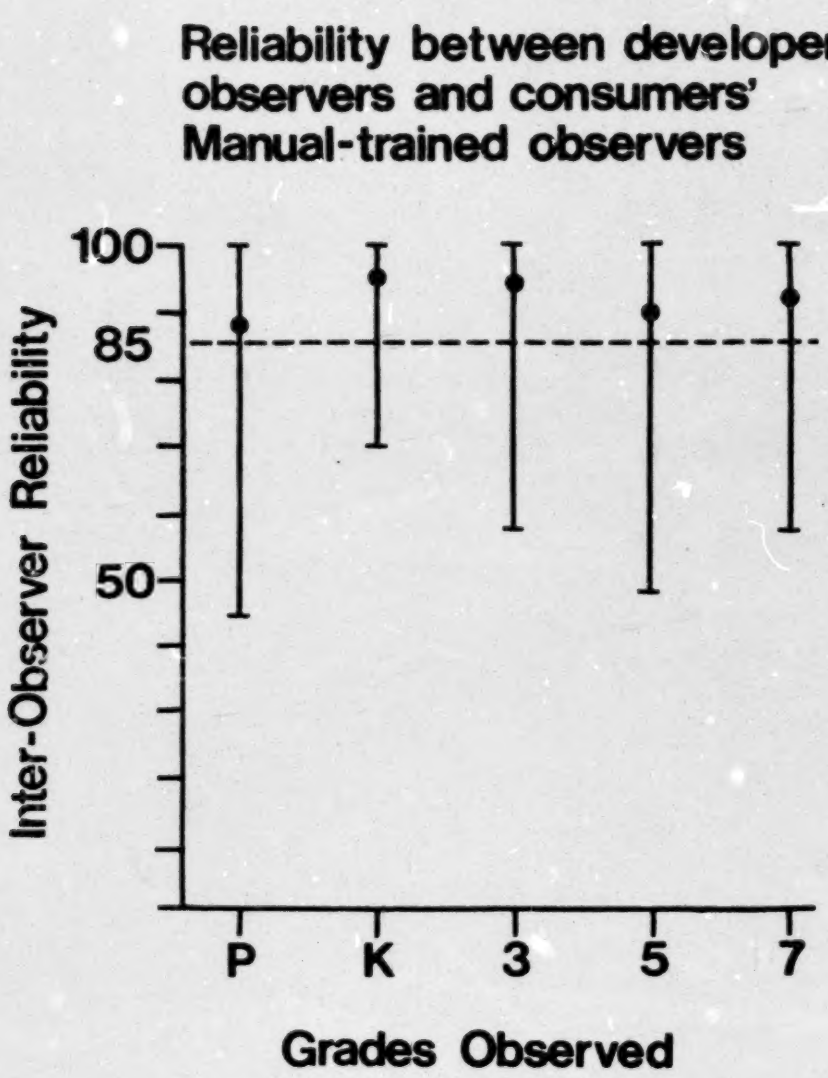

Figure 4. Mean and range of reliability between a trained observer of the Training Manual Development Staff and one or both of the observers at each of the subcontract sites. The data represents at least 30 PLA-Check counts at each of the sites.

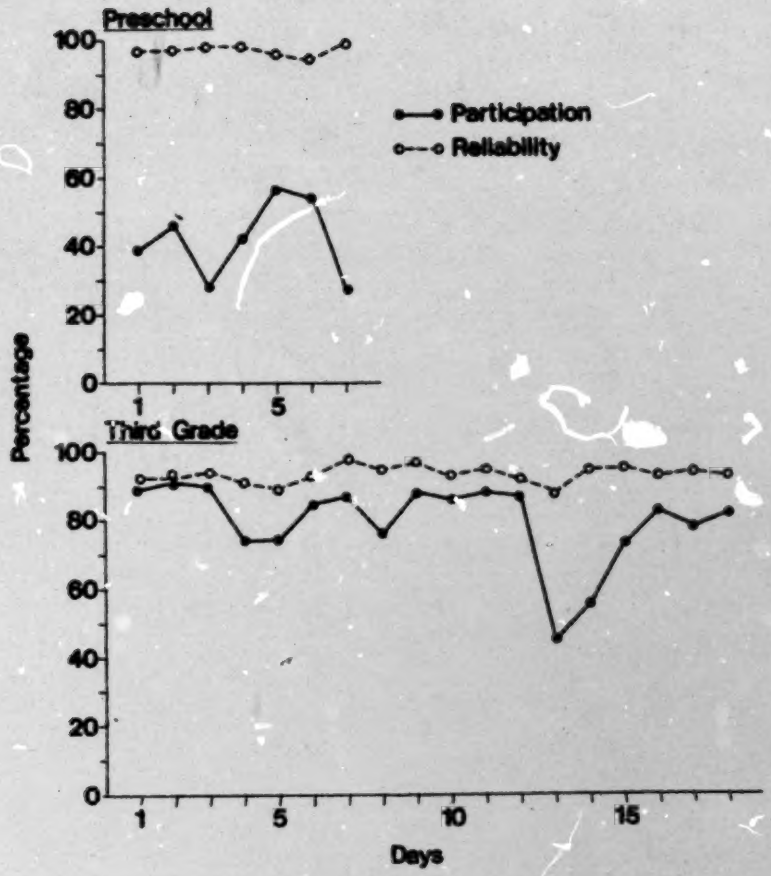

Figure 5. Participation and reliability between observers in a preschool where participation levels are generally low and in a third-grade classroom where participation is high.

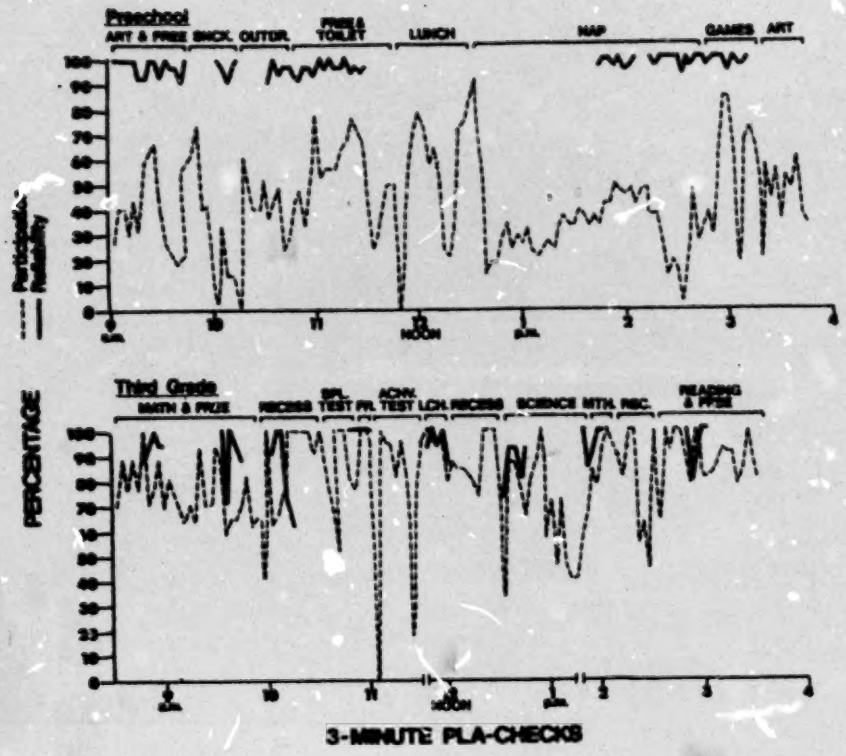

Figure 6. Participation and reliability between observers through an entire class day in a preschool and a third-grade classroom.

Reliability Scores of Observer-Pairs for Three Observations Using Version IV of the PLA-Check Training Manual

Obs. Pair	Observation 1	2	3
1	92	94	91
2	89	93	98
3	77	95	97
4	93	95	92
5	88	95	95

Table 1. Inter-observer reliability on observations in preschool through college classes with a wide range of student participation levels.